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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,416	09/05/2003	Billy Franklin Beasley JR.	31599/260254	7566

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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
1731	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/656,416	BEASLEY ET AL.	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *08 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2, 4-6, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clapp (1765860).

Clapp discloses a multi-layer liner board or paper comprising a bottom layer of cellulosic fibers and a top layer having 5-20 parts by weight bleached sulphite pulp, 10-20 parts wood flour or sawdust, and 75 to 105 parts other material (Claim 1; p 1, lines 58-72; p2, lines 5-13, 71-74). The sawdust can thus be present in the top layer in an amount between 7.4 and 20% by weight. The sawdust particles are capable of passing through a 40-80 mesh sieve (particle size range from about 177 to about 420 μm). The range of acceptable particle sizes significantly overlays the claimed range and it would have been obvious to a person skilled in the art at the time of the invention to use sawdust with at least 95% of the particles having a size between 350 and 420 μm with a reasonable expectation of success in producing an acceptable paperboard. Although the densities of the layers is not disclosed, the two layers are made from very different compositions of materials and would obviously have very densities (the top layer includes 50 to 70 parts by weight of china clay or kaolin, which is much denser than the fibers). Clapp discloses that the layers of the sheet are contacted prior to drying (p 1, lines 75-84). Clapp is silent as to the thickness of the layers; however, the reference

encompasses embodiments wherein the top layer is of sufficient mass that the overall sheet contains greater than 1% sawdust by weight.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chance et al (5770013) in view of Clapp or McCowan (5203965).

Chance et al discloses a 3-ply paperboard comprising wood (cellulose) fibers and sawdust. The wood fiber material is present in an amount of about 20-25% by weight of the paper and comprises from 5-70% sawdust (col 4, lines 36-39 and col 8, lines 32-38). Thus, the amount of sawdust that can be present by weight of the multi-ply paper can be from 1 to 17.5%, which significantly overlaps the claimed ranges.

Chance et al does not disclose the particle size of the sawdust.

Clapp discloses a multi-layer liner board or paper comprising wood flour or sawdust with particle sizes from about 177 to about 420 μm. Clapp discloses that the product made using sawdust with the disclosed particle sizes forms well on a cylinder mould (p 2, lines 71-76).

McCowan et al discloses that making a paper using sawdust that has been screened to a particle size of greater than about 1/16 inch (about 1590 μm) results in paper having good strength properties. McCowan also discloses that the paper can have at least 30% sawdust (Abstract; col 1, lines 37-44; col 4, line 51 to col 5, line 11).

The art of Chance et al, Clapp, McCowan and the instant invention are analogous because they deal with the making of paper in general and specifically paperboard having sawdust particles. It would have been obvious to one skilled in the

art at the time of the invention to obtain 95% of sawdust particles having a size between 1590 and 3175 μm or between 350 and 420 μm in the paperboard of Chance et al in view of Clapp or McCowan to obtain good strength or formation properties.

Claims 5-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chance et al in view of Clapp or McCowan and further in view of Gomez (5227024) and Qiu et al (5505395).

Chance et al discloses that the three layers are brought into contact before the drying stage of the process (col 5, lines 57-67).

Chance et al, Clapp and McCowan do not disclose that at least two low density layers are sandwiched between two high density layers. Chance et al, Clapp and McCowan further do not disclose the sawdust content of at least one high density layer.

Qiu et al discloses a spirally wound paperboard tube having multiple plies of lower and higher densities, wherein the lower density paperboard is at least 3% lower than the higher density paperboard. The tube has at least one lower density layer sandwiched between two higher density structural layers (Abstract). Qiu et al also discloses that in a preferred embodiment, there are at least two centrally located lower density layers (col 3, lines 66-67 and col 4, lines 1-2). Qiu et al further discloses that the plies are coated with adhesive prior to winding to adhere them together (col 8, lines 47-49). Qiu et al teaches that it is well known in the art to use paperboard plies of widely varying densities to form paperboard tubes and that the densities range from 0.5 to 0.9 g/cm^3 (col 6, lines 60-66).

Qiu et al teaches that the density of paperboard can be varied by varying raw materials or additives (col 6, line 67 and col 7, lines 1-3). Qiu et al does not teach that adding sawdust can change the density of the paperboard.

Gomez discloses a process for reducing the density of a paper by adding inexpensive vegetable filler (such as waste wood from sawing and planing processes) (Abstract; col 5, lines 58-63). While Gomez uses sawdust particles smaller than 150 μm in size, the size limitation is required for good sheet formation and minimizing defects in uniformity and not for lowering density (col 6, lines 9-16).

The art of Chance et al, Clapp, McCowan, Qiu et al, Gomez and the instant invention are analogous because they deal with the making of paper and paperboard products. It would have been obvious to one skilled in the art at the time of the invention to use layers of different densities in the paperboard of Chance et al in view of Clapp or McCowan and further in view of Qiu et al and Gomez to lower the cost of the paperboard (via addition of sawdust) yet maintain structural strength with the high density layer. It would have also been obvious to include sawdust in the high density layer for cost savings or to omit it if higher strength is needed. It would have been obvious to adhere the layers together to incorporate strength into the final multi-layered sheet. Since a common use of paperboards is the formation of multi-layered paperboard tubes, it would have been obvious to a person of ordinary skill in the art to make paperboard tubes having multiple layers with the inexpensive lower density layers in the center of the wall sandwiched by the stronger high density layers to provide structural strength.

Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chance et al in view of Clapp or McCowan and further in view of Gomez, Qiu et al and Howard et al (6033352).

Chance et al, Clapp, McCowan, Gomez and Qiu et al do not disclose that a paperboard ply wound to form a tube is overlapped on itself.

Howard et al discloses various methods for winding paperboard plies to form a spirally wound tube. In one method, the final ply is wrapped to overlap itself at the seam (col 4, lines 37-41).

The art of Chance et al, Clapp, McCowan, Qiu et al, Gomez, Howard et al and the instant invention are analogous because they deal with the making of paperboard and paperboard products.

It would have been obvious to one skilled in the art at the time of the invention to overlap the paperboard winding on itself to make a tube with the paperboard of Chance et al in view of Clapp or McCowan and further in view of Qiu et al, Gomez and Howard et al to increase the strength of the tube.

Response to Arguments

Applicant's arguments filed 8/8/2006 have been fully considered but they are not persuasive.

Applicant admits on p 2, par 2 that it is generally true that a claimed range does not distinguish over an overlapping range found in prior art. Applicant argues that the claims recite a claimed range of wood sawdust content and that a substantial portion of

the sawdust falls within the particle size range of 350 to 3175 μm. Applicant further argues on pp 3-4 that, although the Clapp patent discloses use of a finely divided sawdust in place of wood flour, Clapp states that the resulting paperboard "is not quite as satisfactory when finely-divided sawdust is used as when wood flour is used." However, Clapp states that, even when finely-divided sawdust is used, the product still forms well on a cylinder mould (p 2, lines 71-76). Thus Clapp teaches that either material will work but that one works slightly better. This revelation does not teach away from using the sawdust as an unsatisfactory material, but that the results of using sawdust are not "quite" as satisfactory in the opinion of the inventor. No data are provided to substantiate this opinion.

Applicant argues that the particle size range from 177-420 μm revealed by Clapp, although overlapping the claimed range, would not make the claimed range obvious. Applicant assumes a linear distribution of sawdust particles and argues that Clapp teaches that only 29% of the sawdust particles would fall within the claimed range. Assuming a linear particle distribution is incorrect. Sealey II et al (US 2003/0025251) teaches that the particle size distributions of sawdust is a function of saw thickness, tooth design, saw speed and saw diameter (p 6, par 51). Sealey II et al provides particle size distributions for several sawdust samples that are quite nonlinear (p 6, par 53 bridging to p 7). For example, one sawdust had the following Bauer-McNett distribution:

24.3% retained on 14 Mesh (1190 μm Tyler Mesh size)

26.7% retained on 28 Mesh (595 μm Tyler Mesh size)

43.2% retained on 100 Mesh (149 μm Tyler Mesh size)

5.8% passed through 100 Mesh

The above distribution is nonlinear and also comprises a majority of the particles in the claimed size range, although not quite 95%. Particle size distributions for the other three samples vary from that given above but are also nonlinear. Thus assuming a linear distribution over any range of particle sizes is incorrect and cannot support any argument.

Applicant admits on pp 5-6 that the McCowan patent discloses using sawdust sifted to have a particle size range from about 1588 to 6350 μm, which significantly overlays the claimed range. Applicant argues, again assuming a linear size distribution, that only 33% of the particles disclosed by McCowan would fall within the claimed size range. As discussed above, assuming a linear distribution is incorrect and cannot form the basis for any argument. Applicant also argues that McCowan teaches that the length of the wood fibers largely determines the strength of the paper and that one of ordinary skill in the art would not choose a linear particle size distribution, but one focused toward the upper particle size limit. In fact, McCowan discloses that using particles that lie between a number 12 and a number 3 screen (about 1588 to 6350 μm) have substantial strength values (col 4, lines 51-56) but does not further direct one of ordinary skill in the art to use particles in the upper end of the disclosed range.

Applicant argues on p 6 that the Gomez reference is not combinable with any other reference because it teaches away from the claimed invention by requiring the particle size of the sawdust filler to be less than 150 μm. As discussed in the rejection

above, the size limitation is disclosed by Gomez only for good sheet formation and minimizing defects in uniformity, not for lowering density. Gomez teaches that, if particles larger than 150 μm are used, the resulting fibrous sheet exhibits uniformity defects (col 6, lines 13-16).

Applicant argues on p 7 that combination of six references in the rejection of Claims 19-22 is impermissibly based on hindsight. "It should be too well settled now to require citation or discussion that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." In re McLaughlin, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971). As discussed in the rejections above, the use of paperboard to make spirally wound tubes is well known as are the various methods for winding, including overlapping at the seam. Qiu et al discloses that it is known in the art to form spirally wound paperboard tubes having multiple plies of differing densities and that the plies can be coated with adhesive prior to winding. Qiu also teaches that varying raw materials or additives can vary the density of paperboard. Gomez teaches that adding sawdust can decrease density of paper. All of the features of the claims were available to one of ordinary skill in the art at the time of the invention. It would thus have been obvious to one of

ordinary skill in the art to make the claimed spirally wound paperboard tube as a typical use for paperboard.

Clapp teaches a paperboard comprising the claimed amount of sawdust having a particle size range significantly overlapping the lower end of the claimed range to obtain good formation. McGowan teaches making a paper comprising the claimed amount of sawdust having a particle size range significantly overlapping the upper end of the claimed range to provide strength. Chance et al teaches a multi-ply paperboard comprising the claimed amount of sawdust, but does not disclose a particle size. Both Clapp and McGowan teach that particle sizes can be selected by sifting or sieving to obtain desired properties. The particle size ranges of Clapp and McGowan do not specify linear distributions or any other specific distribution, only that particles within the disclosed ranges provide favorable formation or strength properties. Thus, in some embodiments, greater than 95% of the particles are within the overlapping ranges of Clapp and the instant invention or McCowan and the instant invention. It would have been obvious to one of ordinary skill in the art to use particles having sizes anywhere within the disclosed ranges of Clapp and McCowan, including the portions of the ranges that overlap the instant claims, to obtain favorable properties. The instant Disclosure does not provide a comparison of the properties of the claimed paperboard with paperboard made using particle sizes outside of the claimed ranges, only comparisons between the instant invention and paperboard having no sawdust, thus there is no evidence showing that the particular claimed range is critical or achieves unexpected results relative to

the prior art range.

The rejections are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC

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